Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Mature oocyte cryopreservation: a guideline.

Bibliographic Source(s)

Practice Committees of American Society for Reproductive Medicine, Society for Assisted Reproductive Technology. Mature oocyte cryopreservation: a guideline. Fertil Steril. 2013 Jan;99(1):37-43. [48 references] PubMed

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Definitions for the strength of the recommendations (Level A-C) are given at the end of the "Major Recommendations" field.

- In patients facing infertility due to chemotherapy or other gonadotoxic therapies, oocyte cryopreservation is recommended with appropriate counseling (Level B).
- More widespread clinic-specific data on the safety and efficacy of oocyte cryopreservation in donor populations are needed before universal donor oocyte banking can be recommended (Level B).
- There are not yet sufficient data to recommend oocyte cryopreservation for the sole purpose of circumventing reproductive aging in healthy women (Level B).
- More data are needed before this technology should be used routinely in lieu of embryo cryopreservation (Level B).

Definitions:

Level A: There is good evidence to support the recommendations, either for or against.

Level B: There is fair evidence to support the recommendations, either for or against.

Level C: There is insufficient evidence to support a recommendation, either for or against.

Clinical Algorithm(s)

None available

Scope

Disease/Condition(s)

Infertility

Guideline Category

Counseling

Management

Technology Assessment

Clinical Specialty

Internal Medicine

Obstetrics and Gynecology

Intended Users

Physicians

Guideline Objective(s)

To outline the current technology, clinical outcomes, and risks of mature oocyte cryopreservation and provide recommendations for clinical applications

Target Population

Women of reproductive age

Interventions and Practices Considered

Oocyte cryopreservation

Major Outcomes Considered

- Fertilization and pregnancy rates
- Implantation rates
- Oocyte survival

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The Committee performed a systematic literature search using the MEDLINE site up to April 2012. In order to compare the efficacy (clinical pregnancy and live birth rates) of embryo transfers using fresh or cryopreserved/thawed oocytes, the search utilized combinations of medical subject headings "oocyte," "cryopreservation," "vitrification," "frozen," "birth," "delivery," and "pregnancy." In order to assess the safety of oocyte cryopreservation, the search included the terms "safe," "risk," "birth defect," "karyotype," and "abnormal" to the search. Only English language articles were selected, and the search was restricted to published articles. Review articles were included.

Number of Source Documents

- 80 articles were determined to be relevant for oocyte cryopreservation efficacy
- 32 articles were determined to be relevant for oocyte cryopreservation safety

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus (Committee)

Rating Scheme for the Strength of the Evidence

Level I: Evidence obtained from at least one properly designed randomized controlled trial.

Level II-2: Evidence obtained from well-designed controlled trials without randomization.

Level II-2: Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.

Level II-3: Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled trials might also be regarded as this type of evidence.

Level III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

The relevance of included articles was assessed by an epidemiologist with subsequent consultation by the Committee. All relevant articles were reviewed and the level of evidence was determined for each article.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The consulting clinical epidemiologist presented to the Practice Committee an assessment of the evidence and a list of recommendations supported by the evidence. The Committee discussed the evidence and reviewed the consultant's recommendations. The document based on the recommendations approved by the Committee was written by an expert in the field who did not have relevant conflicts of interest. The document was reviewed by the Practice Committees of both the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology, after which the Board of Directors and the members of the Society were given the opportunity to review the document and make suggestions and the appropriate modifications were made. The final document reflects the evidence-based consensus assessment by the Society.

Rating Scheme for the Strength of the Recommendations

Level A: There is good evidence to support the recommendations, either for or against.

Level B: There is fair evidence to support the recommendations, either for or against.

Level C: There is insufficient evidence to support a recommendation, either for or against.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

The Practice Committees and the Board of Directors of American Society for Reproductive Medicine (ASRM) and Society for Assisted Reproductive Technology (SART) have approved this report. It has been reviewed by the SART presidential chain and edited based on their comments.

This document was reviewed by ASRM members and their input was considered in the preparation of the final document.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Successful in vitro fertilization (IVF), pregnancy, and birth with cryopreserved oocytes
- No increase in chromosomal abnormalities, birth defects, and developmental deficits in the offspring born from cryopreserved oocytes when compared to pregnancies from conventional IVF/intracytoplasmic sperm injection (ICSI) and the general population.
- Successful oocyte cryopreservation has the potential to simplify oocyte donation.

Potential Harms

- Most vitrification protocols use an "open" system, in which oocytes are directly exposed to liquid nitrogen to maximize ultra-rapid cooling and minimize ice crystal formation. A theoretical concern regarding such "open" systems is their potential to expose oocytes to infectious organisms present in contaminated liquid nitrogen.
- There are risks associated with ovarian stimulation and oocyte retrieval. Since embryo transfer is not being performed in most individuals cryopreserving oocytes, the risks of ovarian hyperstimulation syndrome (OHSS) are very low.
- Studies suggest that implantation and pregnancy rates may be lower when frozen oocytes are used compared with fresh or frozen embryos.

Qualifying Statements

Qualifying Statements

Although this document reflects appropriate management of a problem encountered in the practice of reproductive medicine, it is not intended to be the only approved standard of practice or to dictate an exclusive course of treatment. Other plans of management may be appropriate, taking into account the needs of the individual patient, available resources, and institutional or clinical practice limitations.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2013 Jan

Guideline Developer(s)

American Society for Reproductive Medicine - Nonprofit Organization

Society for Assisted Reproductive Technology - Professional Association

Source(s) of Funding

American Society for Reproductive Medicine

Guideline Committee

Practice Committees of the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology

Composition of Group That Authored the Guideline

Committee Members: Samantha Pfeifer, M.D.; Jeffrey Goldberg, M.D.; R. Dale McClure, M.D.; Roger Lobo, M.D.; Michael Thomas, M.D.; Eric Widra, M.D.; Mark Licht, M.D.; John Collins, M.D.; Marcelle Cedars, M.D.; Catherine Racowsky, Ph.D.; Michael Vernon, Ph.D.; Owen Davis, M.D.; Clarisa Gracia, M.D., M.S.C.E.; William Catherino, M.D., Ph.D.; Kim Thornton, M.D.; Robert Rebar, M.D.; Andrew La Barbera, Ph.D.

Financial Disclosures/Conflicts of Interest

All Committee members disclosed commercial and financial relationships with manufacturers or distributors of goods or services used to treat patients. Members of the Committee who were found to have conflicts of interest based on the relationships disclosed did not participate in the discussion or development of this document.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the American Society for Reproductive Medicine Web site .

Print copies: Available from American Society for Reproductive Medicine, 1209 Montgomery Highway, Birmingham, Alabama 35216-2809; Phone: (205) 978-5000; Fax: (205) 978-5005; E-mail: asrm@asrm.org; Web site: www.asrm.org .

Availability of Companion Documents

The following is available:

- CME credit related to this guideline is available from the American Society for Reproductive Medicine Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on September 13, 2013. The information was verified by the guideline developer on October 9, 2013.

Copyright Statement

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